

Mac and PC Performance Analysis

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Mac and PC Performance Analysis

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Abstract

The purpose of this research was to find answers to the following questions:

- What is the best (or most appropriate) benchmarking tool?
- What is the impact of a computer's hardware on performance?
- Which OS has the best performance on an Intel Mac?
- Does Windows Vista perform differently than Windows XP?

To find answers to these questions, test suites from three benchmarking tools were run on a Dell Optiplex 745, a Dell Optiplex 755, an MPC ClientPro 365, a Dell Precision 5400, a MacBook, and a MacBook Pro. The benchmarking tools used were GeekBench and CineBench (on both Mac OS and Windows) and PassMark (only on Windows). A recommended lab benchmarking tool was not determined, because every tool used employed unique criteria, thus making it difficult to select a "best" tool. It was discovered that hardware can make a significant difference on computer performance. It was also discovered that the fastest OS on an Intel Mac was Mac OS X Leopard, which was a full 15% faster than Windows Vista on the same hardware. It was also discovered that Windows Vista is, at least according to these generic benchmarking tools, *not* significantly slower than Windows XP.

What is the best benchmarking tool?

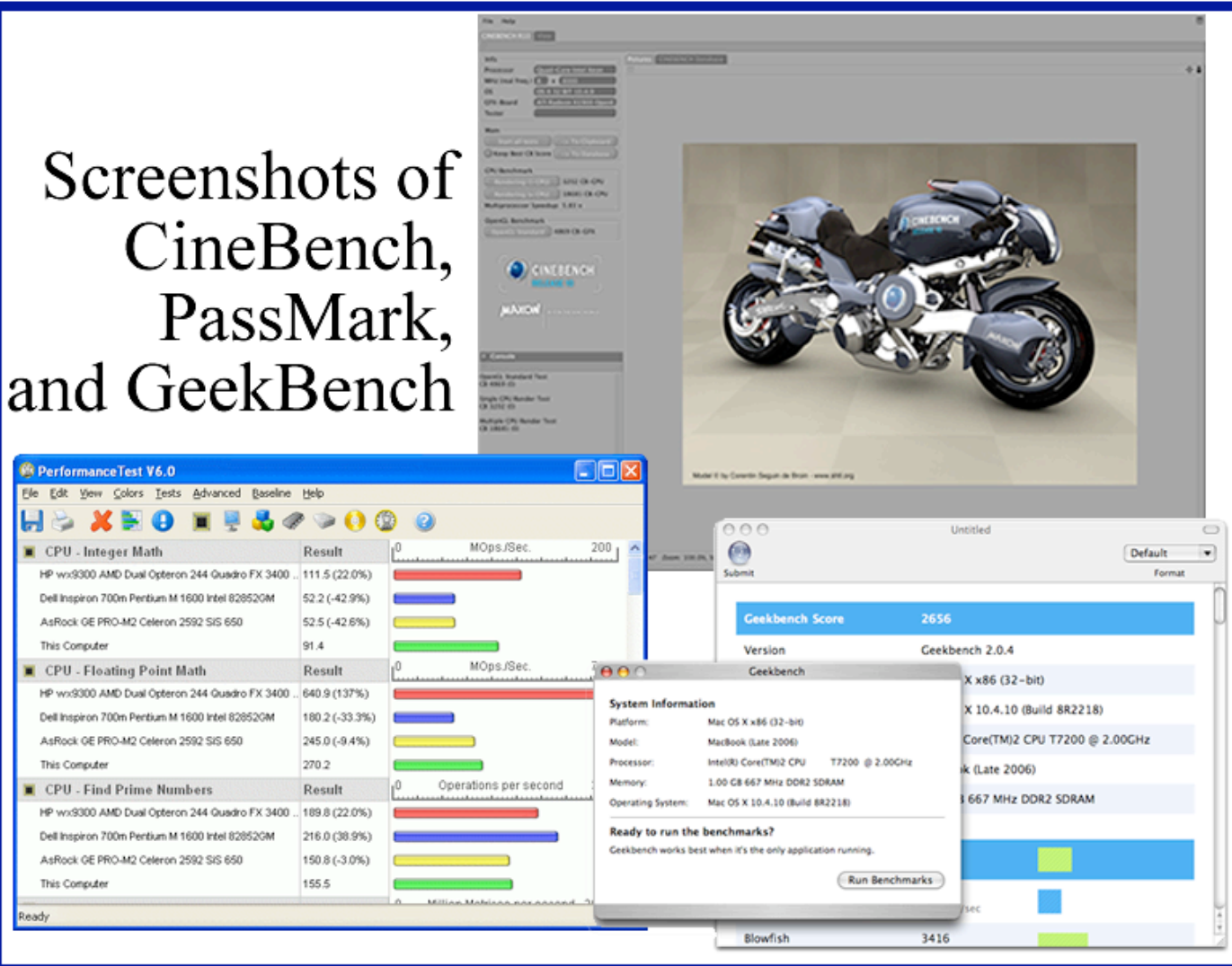
The parameters of each benchmarking tool

	GeekBench	CineBench	PassMark
Floating Point	X		
Integer	X		
Memory	X		X
Stream	X		
1 CPU		X	X
2 CPU		X	X
Graphics		X	X
Disk Mark			X
CD Mark			X
Overall	X		X

What is the best benchmarking tool?

Screenshots of the tools used

Screenshots of CineBench, PassMark, and GeekBench



What is the best benchmarking tool?

The systems we tested

Desktops Used

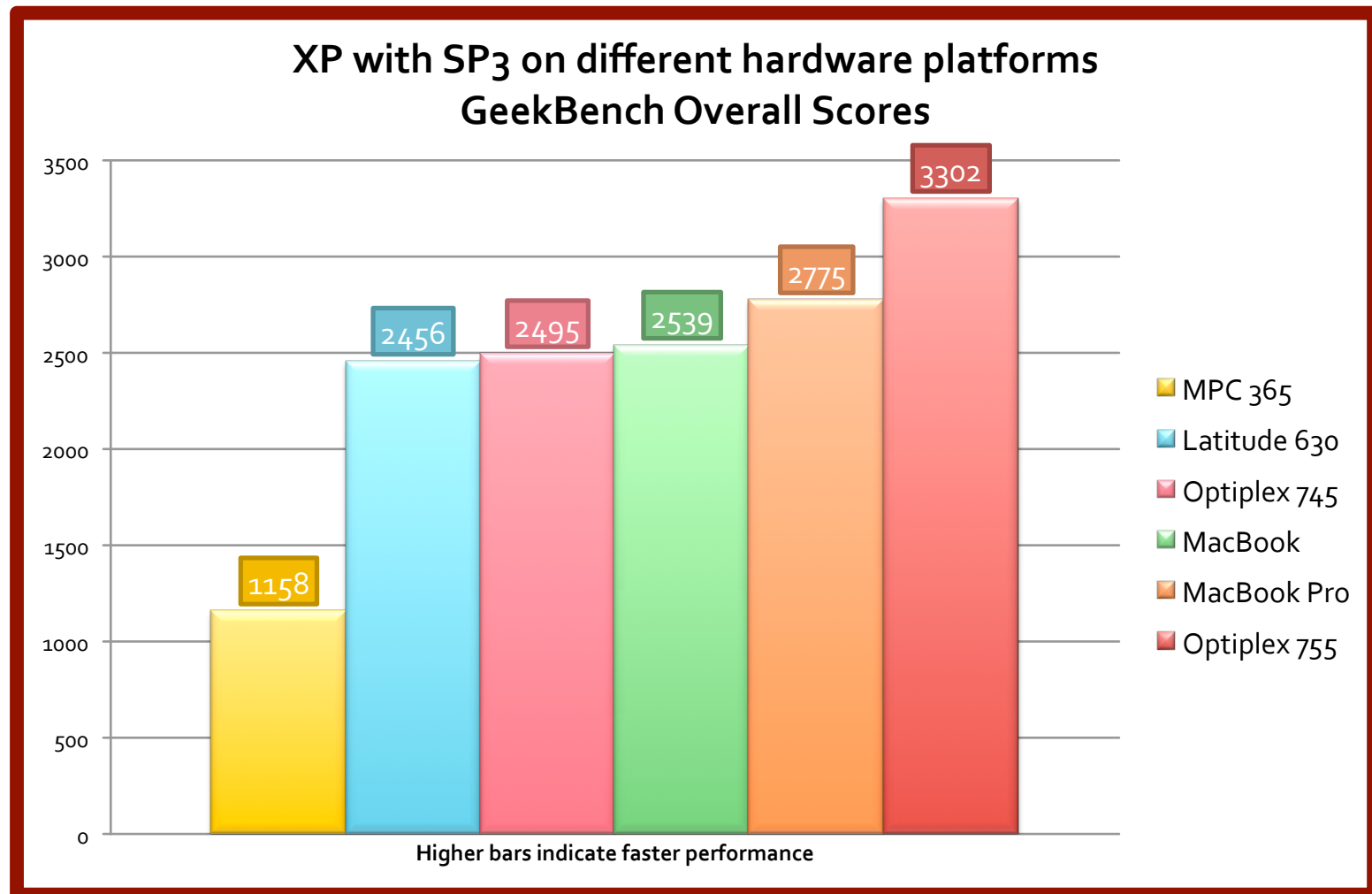
	Dell Optiplex 745	Dell Optiplex 755	Dell Precision 5400	MPC ClientPro 365
Cost	\$887	\$823	\$2629	\$1594
CPU	Core 2 Duo, 2.13 GHZ	CPU: Core 2 Duo, 3.0 GHZ	Quad Core Xeon, 2.5 GHZ	Pentium 4, 3.4 GHZ
RAM	2 GB	2 GB	8 GB	512 MB
GPU	Radeon HD 2400 Pro - 256 MB	Radeon HD 2400 XT - 256 MB	Quadro FX1700 - 512 MB	GeForce PCX 5750 - 128 MB
HDD	148 GB	250 GB	160 GB	100 GB

Laptops Used

	Apple MacBook	Apple MacBook Pro	Dell Latitude 630
Cost	\$1401	\$2524	\$1335
CPU	Core 2 Duo, 2.2 GHZ	Core 2 Duo, 2.5 GHZ	Core 2 Duo, 2.2 GHZ
RAM	2 GB	4 GB	2 GB
GPU	Intel GMA X3100 (shared)	GeForce 8600M GT - 512 MB	Quadro NVS 135M - 128 MB
HDD	150 GB	200 GB	120 GB

How much difference does hardware make?

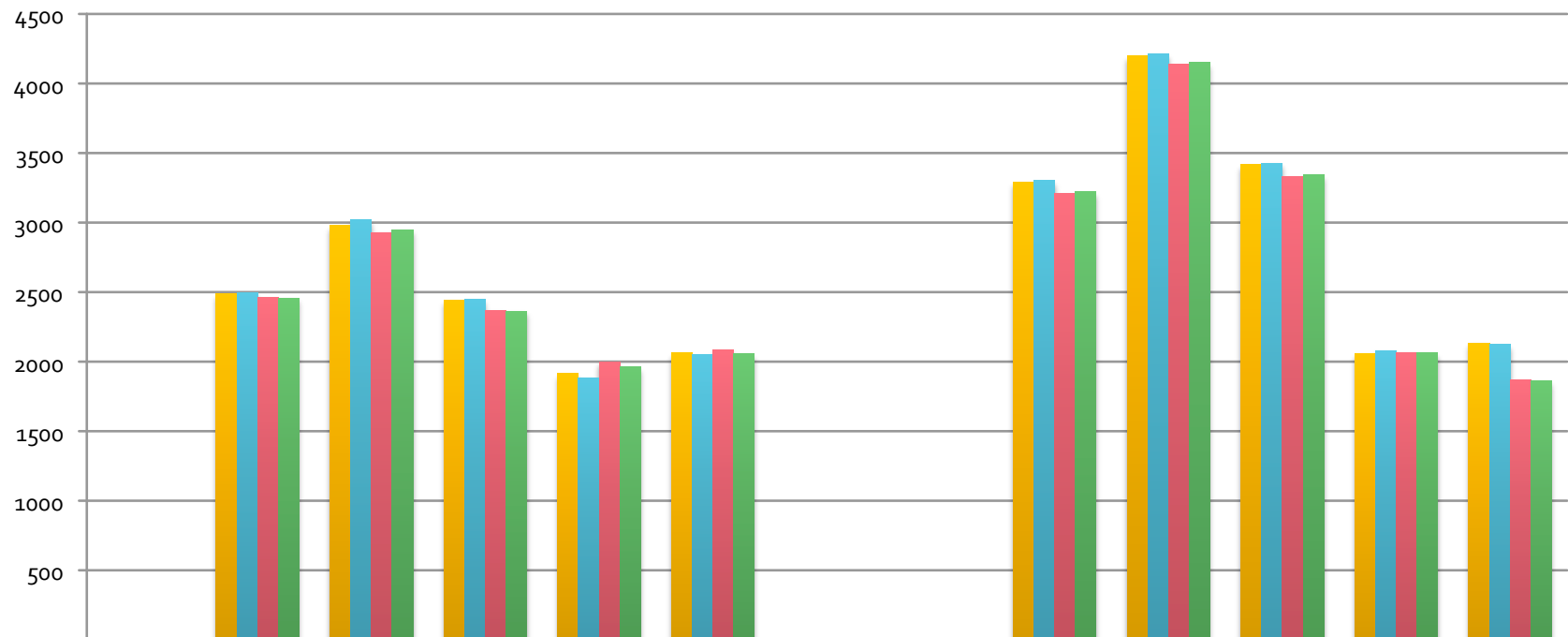
GeekBench results for each test system, under Windows XP with Service Pack 3



How much difference does hardware make?

Detailed comparison of Optiplex 745 and Optiplex 755 systems in GeekBench

Comparison of Optiplex 745 and 755 systems in GeekBench



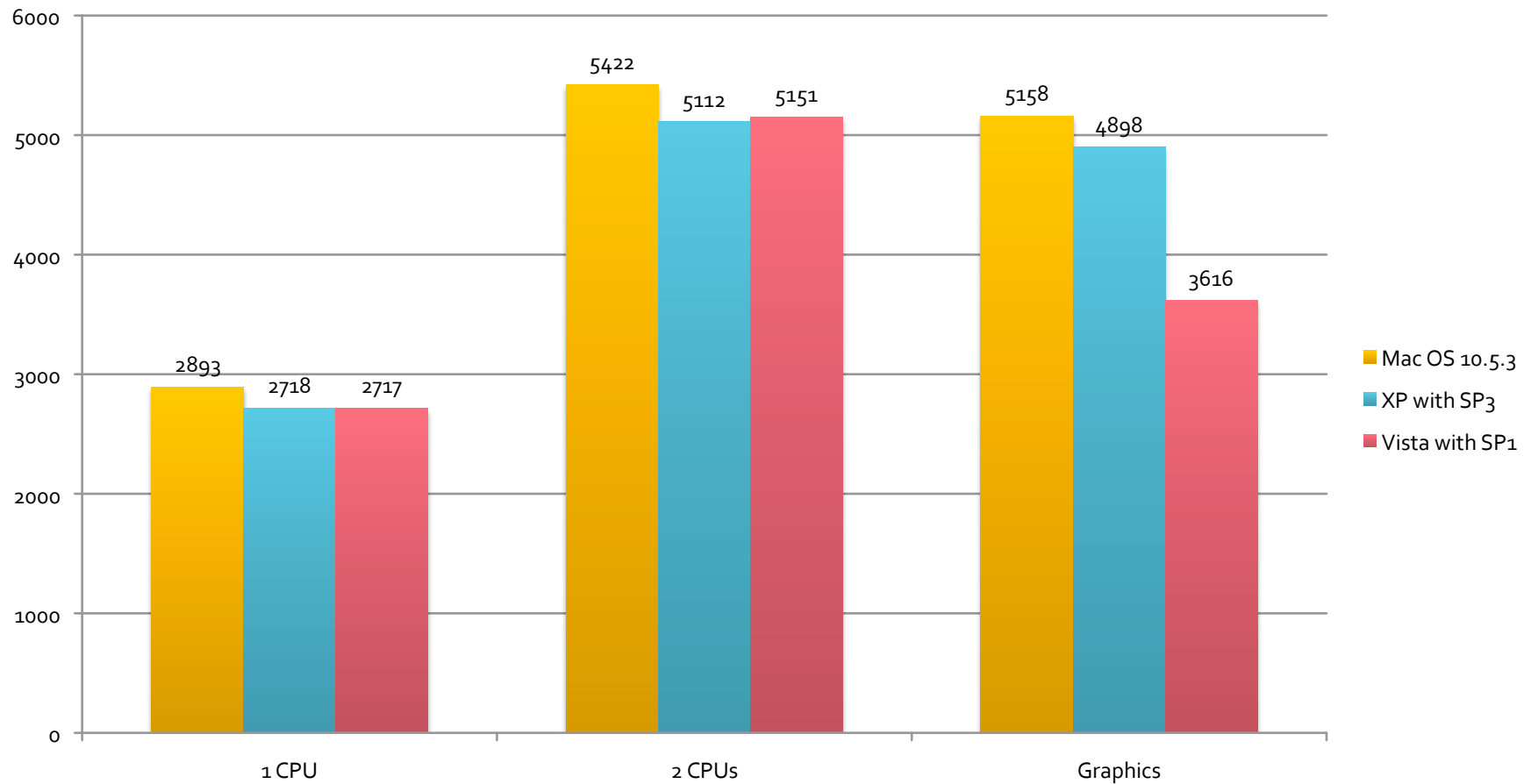
	Optiplex 745	Overall	Integer	Floating Point	Memory	Stream		Optiplex 755	Overall	Integer	Floating Point	Memory	Stream
XP SP2		2486	2978	2443	1914	2062			3290	4198	3415	2061	2135
XP SP3		2495	3022	2448	1883	2048			3302	4212	3428	2080	2123
Vista RTM		2462	2930	2369	1999	2084			3212	4136	3330	2064	1869
Vista SP1		2458	2950	2364	1963	2058			3220	4150	3341	2064	1860

Which OS is faster on an Intel Mac?

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Detailed MacBook Pro scores in CineBench

MacBook Pro - Detailed CineBench Breakdown

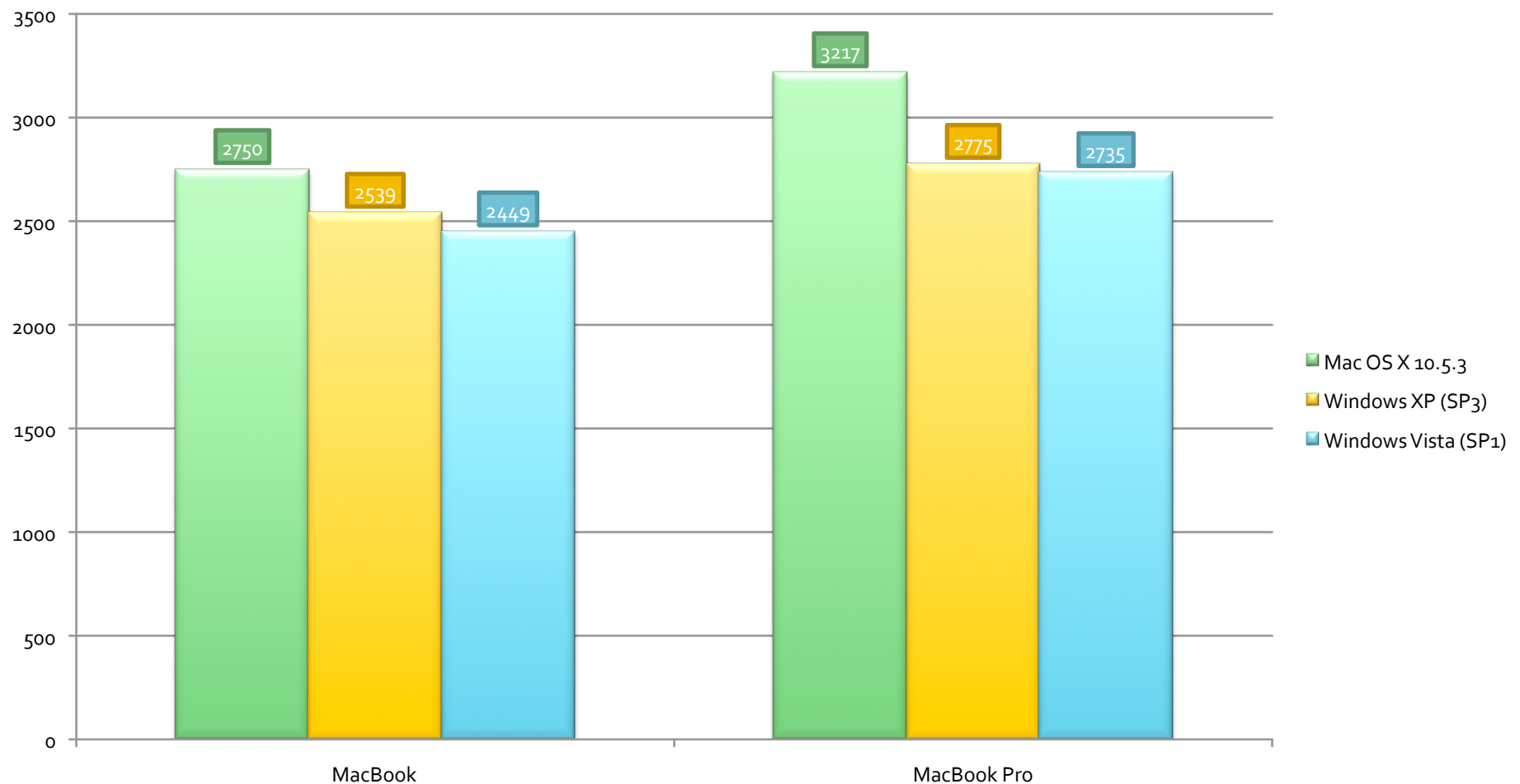


Which OS is faster on an Intel Mac?

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Comparison of various operating systems on MacBook and MacBook Pro in GeekBench

GeekBench Overall Scores for MacBook and MacBook Pro

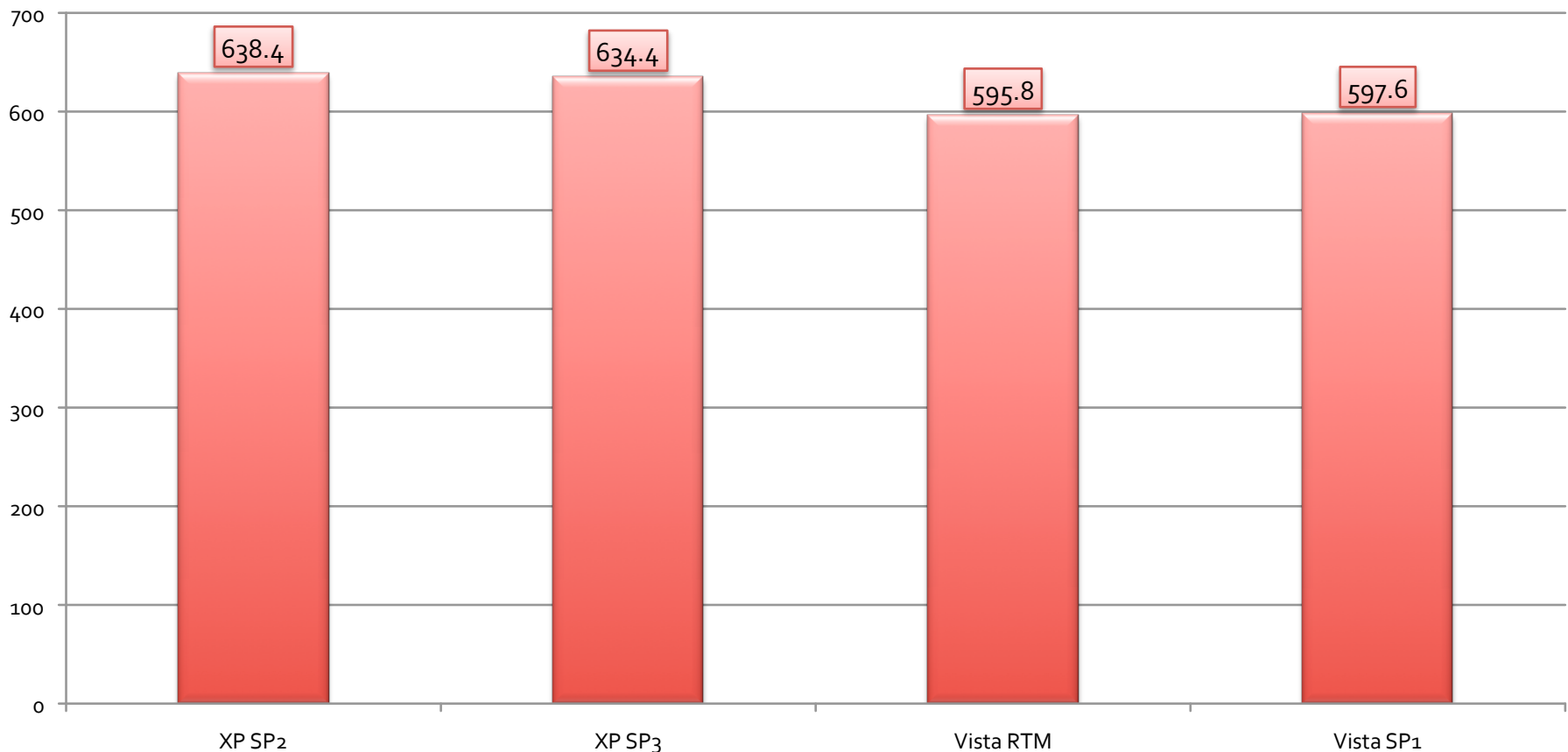


Is Vista any different from XP?

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Optiplex 745 PassMark results for each OS tested

Optiplex 745: PassMark Ratings



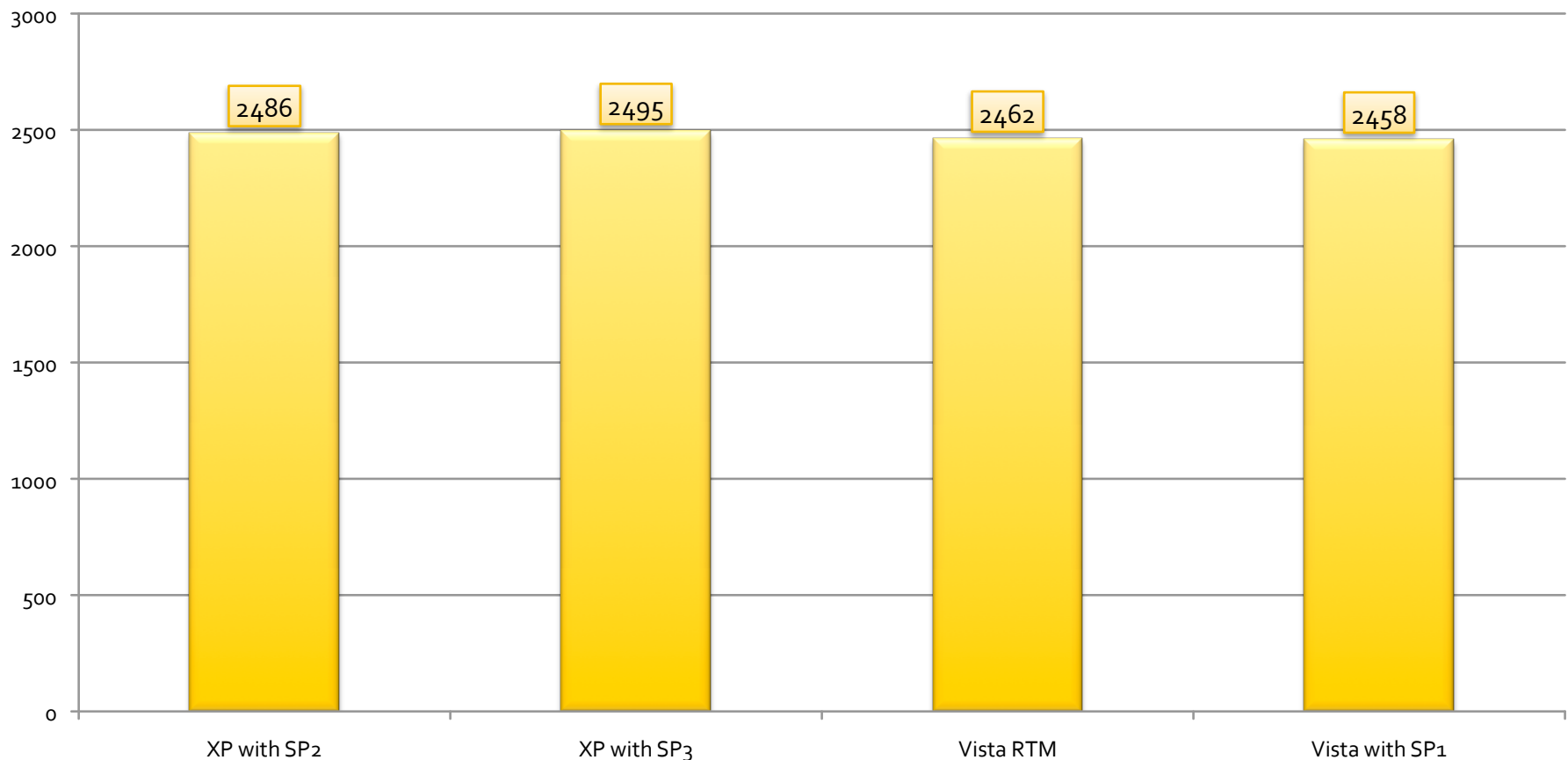
Longer bars represent better performance.

Is Vista any different from XP?

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Optiplex 745 GeekBench results for each OS tested

Optiplex 745 - overall GeekBench scores



Higher bars indicate faster performance

Conclusions

- It is difficult to determine a "best" benchmarking tool, as each tool measures different attributes of a system.
- On an Intel Mac, the fastest operating system is Apple's Mac OS X Leopard, which is 15% faster than Windows Vista.
- Improvements in hardware result in better overall system performance.
- Windows Vista is *not* significantly slower than Windows XP on the same hardware platform, according to these generic benchmarks.

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